M.Sc. 3rd Semester Examination, 2011

BIOMEDICAL LABORATORY SCIENCE AND MANAGEMENT

PAPER—BLM-301 (Unit-17 [illegible])

(Theoretical)

Full Marks : 40

Time : 2 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

UNIT – 17

MODULE – I

(*Clinical Immunology*)

1. Answer any *five* of the following : 1 × 5

   (*a*) What TGF - β ?

   (*b*) Write the full form of IFN-γ.

(*c*) Write the name of two prostate cancer markers.

(*d*) What is mast cell ?

(*e*) What is hapten ?

(*f*) What is prozone phenomenon ?

(*g*) NK cells –

(*i*) Produce interferon
(*ii*) Produce IL2
(*iii*) All of the above
(*iv*) None of the above.

(*h*) T-Lymphocytes can also be referred to as :

(*i*) Mast cells.
(*ii*) Memory cells.
(*iii*) Phagocytic cells.
(*iv*) Short lined cells.

2. (*a*) What is the difference between a polyclonal and monoclonal antibody ?

(*b*) How do you prepare monoclonal antibody ?

(*c*) Write the full form of HGPRT. 2 + 5 +

Or

(*a*) What is the significance of blocking in Western blot ?

(*b*) Discuss the developmental procedure of autoimmunity of any disease.

(*c*) What is CFT ? 1 + 5 + 2

3. (*a*) What do you mean by zone of equivalence ? Elaborate it.

(*b*) What is neutralization ?

(*c*) What is the role of a dendritic cell during antigenic invasion ? 3 + 2 + 2

Or

(*a*) Describe the mechanism of an immediate type of hypersensitivity reaction with diagram.

(*b*) How cancerous cell prevent itself from immunological defence ? 4 + 3

MODULE – II

(*Serology*)

4. Answer any *five* of the following : 1 × 5

(*a*) All the following methods have been developed to detect the presence of HIV-1 viral gene except :

(*i*) RIA

(*ii*) Western blot

(*iii*) DNA amplification

(*iv*) *In situ* hybridization.

(*b*) $CD4^+$ count could be done through :

(*i*) Dual platform flow cytometry

(*ii*) Capcilia method

(*iii*) Coulter counter

(*iv*) *a* and *b*.

(*c*) What is co-agglutination test ?

(*d*) In the latex agglutination method for the detection of hCG, no agglutination indicates :

(*i*) Absence of hCG
(*ii*) Presence of hCG
(*iii*) Positive test
(*iv*) Negative test.

(*e*) The presence of IgM to T. gendii in an adult is indicative of :

(*i*) Carrier state
(*ii*) Active infection
(*iii*) Chronic infection
(*iv*) Latent disease.

(*f*) What is the clinical significance of Rose-Waater test ?

(*g*) Write the name of a test where toluidine red is used.

(*h*) Write the name of two tests where solid phase sandwitched ELISA technique is adopted.

5. (*a*) How do you detect dengue IgG and IgM and also interpret your result ?

(*b*) What is RPHA and mention its application. (4 + 2) +

Or

Describe the method of HIV-detection by Western blot and mention how would you interpret your result. 6 +

6. (*a*) What is AFP ?

(*b*) How do you detect AFP by a suitable method ?

(*c*) Differentiate between RPR and VDRL. 2 + 3 +

Or

(*a*) How anti-CCP is developed in a RA patient ?

(*b*) Mention the clinical significance of hs-CRP test.

(*c*) Mention the demerits of serological detection of tuberculosis. 3 + 2 +

UNIT – 18

MODULE – I

(*Cytotechnology and Cytogenetics*)

1. Answer any *five* of the following : 1 × 5

   (*a*) What do you mean by allxochrome ?

   (*b*) Define acidic stain.

   (*c*) What do you mean by vacuum embedding ?

   (*d*) Write the full form of ISEL.

   (*e*) Write the full form of FACS.

   (*f*) What do you mean by ABC method in immunocytotechnology ?

   (*g*) What do you mean by museum in cytopathology ?

   (*h*) State one application of TUNEL.

2. (*a*) Write the names of different techniques of smear preparation.

   (*b*) State the fundamental steps adopted in PAP staining.

(*c*) Write the cytoarchitectural differences betv normal and cancer epithelial cells. 2

Or

(*a*) Write the principle for the detection of cell marker molecule by immunofluoresce technique.

(*b*) State the steps adopted in ABC technique.

(*c*) Write the advantages of automated ti processor. 3

3. (*a*) What do you mean by inborn error of metaboli

(*b*) How do you detect the inborn error of metabo by cytological technique ?

Or

(*a*) What do you mean by NA of a compc microscope ?

(*b*) Write the working principle of compc microscope.

(*c*) Name any two fluorescence molecules use labelling purpose in FACS. 2

MODULE – II

(*Histotechnology*)

4. Answer any *five* of the following : 1 × 5

(*a*) Write the importance of honing.

(*b*) Which stain is used to investigate depot fat in tissue ?

(*c*) Write the full form of PTAH.

(*d*) Write the composition of Bouin's fixative.

(*e*) Write the names of any two clearing agents used in histology.

(*f*) What do you mean by infiltration ?

(*g*) Write the application of 'Giemsa' staining.

(*h*) Write the full form of DPX.

5. (*a*) Write the application of graded dehydration.

(*b*) How do you prepare 500 ml of 80% alcohol from 70% alcohol and absolute alcohol ?

(*c*) Write the importance about the use of clearing agent. 3 + 2 + 3

Or

(*a*) Write in brief of PAS stain preparation.

(*b*) State the steps adopted in PAS staining.

(*c*) Write the applied value of PAS staining. 3

6. (*a*) Write the bio-physical forces (bonds) respons for bonding the stain molecule with ta molecule.

(*b*) Write the decalcification process in connec with fixation of bone.

Or

(*a*) Write the application of frozen sections ?

(*b*) Write the ZN staining method and writ application.

(*c*) Write the application of Microwave techno in histology. 2